# UNITED STATES PATENT AND TRADEMARK OFFICE

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| 10/635,690 | 08/05/2003 | Li-Wen Chen | 52719.00045 | 8347 |

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| EXAMINER |
|---|
| PYO, MONICA M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2161 | |

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | **Application No.** | **Applicant(s)** |
| *Office Action Summary* | 10/635,690 | CHEN, LI-WEN |
| | **Examiner** | **Art Unit** | |
| | Monica M. Pyo | 2161 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *05 August 2003*.

2a)☐ This action is **FINAL**.       2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

## DETAILED ACTION

1.      Claims 1-23 are present for examination.

2.      Claims 1-23 are rejected.

### *Information Disclosure Statement*

3.      No Information Disclosure Statement submitted to be considered.

### *Drawings*

4.      The drawings are objected to because

-              In fig. 1A, items 104 and 105 do not have block descriptions.  In fig. 1C, item

87 does not have a block description.

Applicant's cooperation is requested in correcting any additional errors of which

applicant become aware in the drawings 1A-14.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to

the Office action to avoid abandonment of the application. Any amended replacement drawing

sheet should include all of the figures appearing on the immediate prior version of the sheet,

even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

must be removed from the replacement sheet, and where necessary, the remaining figures must

be renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

### *Double Patenting*

5.       A rejection based on double patenting of the "same invention" type finds its support in

the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and

useful process... may obtain a patent therefor..." Thus, the term "same invention," in this

context means an invention drawn to identical subject matter.

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by

canceling or amending the conflicting claims so they are no longer coextensive in scope.  The

filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35

U.S.C. 101.

6.       Claims 1-23 are provisionally rejected under 35 U.S.C. 101 as claiming the same

invention as that of claims 1-26 of co-pending Application No. 10/017,701.  This is a provisional

double patenting rejection since the conflicting claims have not in fact been patented.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains.  Patentability shall not be negatived by the
> manner in which the invention was made.

7.       Claims 1-5, 10, 12-19 and 21-23 rejected under 35 U.S.C. 103(a) as being unpatentable

over U.S. Patent No. 7,010,564 issued to Morimoto et al. (hereafter Morimoto) in view of U.S.

Patent No. 6,732,120 issued to Du (hereafter Du).

<u>Claims 1, 21 and 22:</u>

Regarding Claim 1, Morimoto discloses a method, comprising:

- receiving a first schema database comprising information having at least one of a

   spatial component and a remaining component (Morimoto: col. 4, lns. 40-61);

- performing data analysis thereon to determine a geospatial pattern based upon the

   spatial component (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13);

- aggregating data of the database into one or more groupings in accordance

   (Morimoto: col. 3, lns. 54-65; col. 4, lns. 40-67; col. 5, lns. 1-13); and

- n-dimensional presentation (Morimoto: col. 3, lns. 63-67)

Morimoto do not disclose:

- storing the geospatial pattern as meta data;

- displaying one or more indicators associated with the one or more groupings.

However, Du disclose:

- storing the geospatial pattern as meta data (Du: col. 6, lns. 40-54; fig. 3);

- displaying one or more indicators associated with the one or more groupings (Du:

   col. 5, lns. 1-28).

It would have been obvious to a person with ordinary skill in the art at the time of

invention to combine the displaying geographical data method of Du into the spatial data mining

of Morimoto to utilize the storing the spatial data as metadata. Skilled artisan would have been

motivated to incorporate the Du's teaching of storing the spatial data as metadata in the

Morimoto's teaching of spatial data mining to store spatial data in a narrowed grouped tables as

suggested by Du, which disclose "providing the steps of dividing the spatial extent defined by

geographic data into uniquely identified cells, grouping geographic data by cells, and storing

grouped geographic data into a long binary fields of a database record in relational database"

(Du: see Abstract).

Claims 21 and 22 are also rejected based upon the same reasoning as Claim 1.

Claim 2:

Regarding Claim 2, Morimoto and Du disclose the method further comprising:

- analyzing at least a portion of at least one dataset included by the database to

    determine at least one relationship among the groupings (Du: col. 6, lns. 65-67;

    col. 7, lns. 1-14; fig.3); and

- displaying one or more indicators to denote the relationship(s) among the one or

    more groupings (Du: col. 7, lns. 1-20; fig. 3).

Claim 3:

Regarding Claim 3, Morimoto and Du disclose the method further comprising:

- forming a virtual schema meta model based upon at least a portion of at least one

    dataset included by the database (Du: col. 7, lns. 14-51; col. 3, tbl. SCHEMA 1;

    fig. 3); and

- wherein the aggregating data of the database comprises aggregating data of the

    database into one or more groupings in accordance with the virtual schema

    (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13) & (Du: col. 7, lns. 39-51; col. 7-8,

    4 tbls . Schema of Table).

Claim 4:

Regarding Claim 4, Morimoto and Du disclose the method further comprising:

- receiving an input indicating a criterion (Morimoto: col. 4, lns. 40-61);

- storing the input as meta data (Morimoto: col. 4, lns. 40-61) & (Du: col. 6, lns. 40-54; fig. 3); and

- aggregating data of the database into new groupings in accordance with the meta data (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13) & (Du: col. 7, lns. 39-51; col. 7, tbl. SCHEMA 1).

Claim 5:

Regarding Claim 5, Morimoto and Du disclose the method wherein the input comprises at least one of:

- an input from a user (Morimoto: col. 6, lns. 1-18; fig.2 ).

Claim 10:

o Regarding Claim 10, Morimoto and Du disclose the method wherein meta data is stored according to a hierarchy (Du: col. 6, lns. 40-54; fig. 3).

Claim 12:

Regarding Claim 12, Morimoto and Du disclose the method wherein data analysis further comprises at least one of

- data mining; spatial relationship data analysis (Morimoto: col. 3, lns. 53-67; col. 4, lns. 1-7)

Claim 13:

Regarding Claim 13, Morimoto and Du disclose the method wherein aggregating the groupings based upon the spatial-object meta data comprises:

- checking whether data points fall within a common region , and if so, aggregating data represented by the data points (Du: col. 6, lns. 55-65; fig. 3).

Claim 14:

Regarding Claim 14, Morimoto and Du disclose the method further comprising:

- receiving a second input indicating one or more redefined regions (Morimoto: col. 4, lns. 40-61);

- storing the second input as a redefined spatial-object meta data (Morimoto: col. 4, lns. 62-67; col. 5, lns. 1-13) & (Du: col. 6, lns. 40-54; fig. 3); and

- aggregating into new groupings based upon the spatial-object meta data (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13) & (Du: col. 6, lns. 40- 54; fig. 3).

Claim 15:

Regarding Claim 15, Morimoto and Du disclose the method further comprising:

- redefining the virtual schema based upon the spatial-object meta data (Du: col. 8, lns. 35, comprising: - receiving a second input indicating a criteria;

- aggregating data of the database into one or more new groupings in accordance with the redefined virtual schema and the second input indicating the criteria (Du: col. 9, lns. 45-57; col. 9, tbl. "Non-Spatial Attributes"); and

- displaying one or more indicators associated with the one or more new groupings on an n-dimensional presentation (Morimoto: col. 3, lns. 53-57) & (Du: col. 5, lns. 1-28).

Claim 16:

Regarding Claim 16, Morimoto and Du disclose the method further comprising:

- receiving a second input indicating a relationship between a first data point and a second data point on the n-dimensional presentation (Morimoto: col. 3, lns. 53-57; col. 4, lns. 40-61);

- reflecting the relationship in the virtual schema (Du: col. 3, lns. 65-67; col. 4, lns. 1-13; fig. 3);

- aggregating data of the database into one or more new groupings in accordance with the virtual schema (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13) & (Du: col. 7, lns. 39-51; col. 7-8, 4 tbls . Schema of Table); and

- displaying one or more indicators associated with the one or more new groupings on an n-dimensional presentation (Morimoto: col. 3, lns. 53-57) & (Du: col. 5, lns. 1-28).

Claim 17:

Regarding Claim 17, Morimoto and Du disclose the method further comprising:

- receiving a second database (Morimoto: col. 4, lns. 40-61);

- forming a virtual schema including at least a portion of a dataset included within at least one of the first database and the second database (Du: col. 7, lns. 14-51; col. 3, tbl. SCHEMA 1; fig. 3);

- receiving a first input indicating a criteria (Morimoto: col. 4, lns. 40-61);

- aggregating data of at least one of the first database and the second database into one or more groupings in accordance with the virtual schema and the first input indicating the criteria (Du: col. 9, lns. 45-57; col. 9, tbl. "Non-Spatial Attributes"); and

- displaying one or more indicators associated with the one or more groupings on
  an n-dimensional presentation (Morimoto: col. 3, lns. 53-57) & (Du: col. 5, lns. 1-
  28).

## Claim 18:

Regarding Claim 18, Morimoto and Du disclose the method comprising:

- receiving a first schema database comprising information having at least one of a
  spatial component and a remaining component (Morimoto: col. 4, lns. 40-61);

- performing data analysis thereon to determine a geospatial pattern based upon the
  spatial component (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13);

- storing the geospatial pattern as meta data (Du: col. 6, lns. 40-54; fig. 3);

- forming a virtual schema including at least a portion of a dataset included within
  the first database (Du: col. 7, lns. 14-51; col. 3, tbl. SCHEMA 1; fig. 3);
  aggregating data of the database into one or more groupings in accordance with
  the virtual schema and the meta data (Morimoto: col. 3, lns. 54-65; col. 4, lns. 40-
  67; col. 5, lns. 1-13); and

- n-dimensional presentation (Morimoto: col. 3, lns. 63-67); and

- displaying one or more indicators associated with the one or more groupings on
  an n-dimensional presentation (Morimoto: col. 3, lns. 63-67) & (Du: col. 5, lns. 1-
  28).

## Claim 19:

Regarding Claim 19, Morimoto disclose a system, comprising:

- including at least a portion of data input from a source, and generates mapping
  rules controlling data movement into a data warehouse (Morimoto: col. 4, lns. 40-
  61);

- a region checker (Morimoto: col. 6, lns. 1-18);

- a data analyzer (Morimoto: col. 4, lns. 40-67); and

Morimoto do not disclose:

- a schema builder that generates one or more virtual schemas;

- a metadata repository operative to hold the virtual schemas and mapping rules;

- a data analyzer; and

- an n-dimensional presentation

- wherein the data analyzer is operative to create at least one mapping rule based
  upon analysis of information in the data warehouse.

However, Du disclose:

- a schema builder that generates one or more virtual schemas (Du: col. 8, lns. 35-
  67);

- a metadata repository operative to hold the virtual schemas and mapping rules
  (Du: col. 6, lns. 40-64);

- an n-dimensional presentation (Du: col. 5, lns. 1-28)

- wherein the data analyzer is operative to create at least one mapping rule based
  upon analysis of information in the data warehouse (Du: col. 6, lns. 65-67; col. 7,
  lns. 1-14; fig.3).

It would have been obvious to a person with ordinary skill in the art at the time of

invention to combine the displaying geographical data method of Du into the spatial data mining

of Morimoto to utilize the storing the spatial data as metadata. Skilled artisan would have been

motivated to incorporate the Du's teaching of storing the spatial data as metadata in the

Morimoto's teaching of spatial data mining to store spatial data in a narrowed grouped tables as

suggested by Du, which disclose "providing the steps of dividing the spatial extent defined by

geographic data into uniquely identified cells, grouping geographic data by cells, and storing

grouped geographic data into a long binary fields of a database record in relational database"

(Du: see Abstract).

Claim 23:

Regarding Claim 23, Morimoto and Du disclose: a customer data analysis report

produced (Morimoto: col. 6, lns. 1-18; fig. 2).


8.      Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto and

Du in view of an Non-Patent Literature published by Intelligent Enterprise Magazine, "Seeking

Spatial Intelligence" published on January 20, 2000, volume 3, Number 2 by Michael L.

Gonzales (hereafter Gonzales).

Claim 6:

Regarding Claim 6, Morimoto and Du do not disclose the method wherein:

the defined area comprises at least one of:

-       a zip code,

-       an area code,

-       a census tract,

- a Metropolitan Statistical Area (MSA)

However, Gonzales disclose the method wherein the defined area coprisese at least one

of:

- a zip code,

- an area code,

- a census tract,

- a Metropolitan Statistical Area (MSA) (Gonzales: pg. 1, table 1),

It would have been obvious to a person with ordinary skill in the art at the time of

invention to combine the Geographic Information System (GIS) of Gonzales into the displaying

geographical data method of Du and the spatial data mining of Morimoto to utilize the storing

the spatial data as metadata. Skilled artisan would have been motivated to incorporate the

Gonzales's teaching of understanding information below the layer of numeric data in the Du's

teaching of storing the spatial data as metadata and the Morimoto's teaching of spatial data

mining to include a defined area as a part of spatial data as suggested by Gonzales, which

disclose "GIS can use as attributes of spatial features such as points (addresses), lines/networks

(pipe inventories), polygons (service areas)" (Gonzales: pg. 3, Follow the Leader, [03]).

Claim 7:

Regarding Claim 7, Morimoto and Du and Gozales disclose the method wherein:

the derivation based upon one or more objects on the n-dimensional presentation

comprises at least one of:

- a region within a specified distance of a power line (Gonzales: pg. 1, table 1).

9.       Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto and

Du in view of Gonzales, and further in view of an Non-Patent Literature published by Geospatial

solutions, "Coordinates of a Killer" published November 1, 2001 by Leipnik et al. (hereafter

Leipnik).

Claim 8:

Regarding Claim 8, Morimoto and Du and Gonzales do not disclose disclose the method

wherein the result of a computation comprises:

-        computing an animal home range, the home range providing a region defined by

activities of a target;

-        defining within the region a first ellipse; and

-        defining within the region a second ellipse approximately orthogonal to the first

ellipse; wherein

-        an area defined by intersection of the first ellipse and the second ellipse provides a

greatest probability of finding the target.

However, Leipnik disclose:

wherein the result of a computation comprises:

-        computing an animal home range, the home range providing a region defined by

activities of a target (Leipnik: pg. 2, Home range, [01]);

-        defining within the region a first ellipse (Leipnik: pg. 2, Home range, [02]); and

-        defining within the region a second ellipse approximately orthogonal to the first

ellipse (Leipnik: pg. 3, Home rage, [03]; fig. 3); wherein

- an area defined by intersection of the first ellipse and the second ellipse provides a greatest probability of finding the target (Leipnik: pg. 3, Home rage, [03]; fig. 3).

It would have been obvious to a person with ordinary skill in the art at the time of invention to combine the range use of Geographic Information System (GIS) of Leipnik into GIS of Gonzales and the displaying geographical data method of Du, and into the spatial data mining of Morimoto to utilize the storing the spatial data as metadata. Skilled artisan would have been motivated to incorporate the Leipnik's teaching of narrowing the target range in the Gonzales's teaching of understanding information below the layer of numeric data, the Du's teaching of storing the spatial data as metadata, and in the Morimoto's teaching of spatial data mining to use the spatial data to narrow the target's location as suggested by Leipnik, which disclose "GIS extension to create a grid layer showing distance intervals from each store, radiating out in one-mile increments." (Leipnik: pg. 2, Home range, [02]).

Claim 9:

Regarding Claim 9, Morimoto and Du and Gonzales and Leipnik disclose the method wherein: the target comprises at least one of:

- a suspect, who perpetrated criminal acts defined by the data,

- a customer, who completed transactions in shops defined by the data (Leipnik: pgs. 2-3, Home ragne, [02-03]; fig.3),


10.    Claims 11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto and Du in view of U.S. Patent No. 6,480,842 issued to Agassi et al. (hereafter Agassi).

Claim 11:

Regarding Claim 11, Morimoto and Du disclose the method further comprising:

- creating report for at least a portion of a dataset in the data warehouse (Morimoto: col. 6, lns. 1-18; fig. 2);

- reducing the data cube report by aggregation to at least one tuple, comprising a GIS-object and a data point (Du: col. 7, lns. 39-51);

  o storing the GIS-object as metadata (Du: col. 7, lns. 15-38, tbl. SCHEMA 1); and

  o aggregating like tuples for display on the n-dimensional presentation (Du: col. 4, lns. 52-67; fig. 3).

Morimoto and Du do not disclose:

- a data cube

However, Agassi disclose:

- a data cube (Agassi: col. 3, lns. 9-21).

It would have been obvious to a person with ordinary skill in the art at the time of invention to combine the Online Analysis Processing (OLAP) database structure of Agassi into the displaying geographical data method of Du and the spatial data mining of Morimoto to utilize the storing the spatial data as metadata. Skilled artisan would have been motivated to incorporate the Agassi's OLAP database structure in the Du's teaching of storing the spatial data as metadata and the Morimoto's teaching of spatial data mining to allow an interactive response to a query as suggested by Agassi, which disclose "An element relator is provided that relates one or more elements of the OLTP database structure to one or more elements of the OLAP processing database structure" (Agassi: see Abstract).

Claim 20:

Regarding Claim 20, Morimoto and Du do not disclose the system wherein the source comprises at least one of a plurality of on line transaction processing (OLTP) databases.

However, Agassi disclose: wherein the source comprises at least one of a plurality of on line transaction processing (OLTP) databases (Agassi: col. 2, lns. 60-67; col. 3, lns. 1-8).

It would have been obvious to a person with ordinary skill in the art at the time of invention to combine the Online Analysis Processing (OLAP) database structure of Agassi into the displaying geographical data method of Du and the spatial data mining of Morimoto to utilize the storing the spatial data as metadata. Skilled artisan would have been motivated to incorporate the Agassi's OLAP database structure in the Du's teaching of storing the spatial data as metadata and the Morimoto's teaching of spatial data mining to allow an interactive response to a query as suggested by Agassi, which disclose "An element relator is provided that relates one or more elements of the OLTP database structure to one or more elements of the OLAP processing database structure" (Agassi: see Abstract).

## *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica M. Pyo whose telephone number is 571-272-8192. The examiner can normally be reached on Mon-Fri 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 571-272-4023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system.  Status information for published applications

may be obtained from either Private PAIR or Public PAIR.  Status information for unpublished

applications is available through Private PAIR only.  For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Monica M Pyo
Examiner
Art Unit 2161


3/20/2006


SAFET METJAI
SUPERVISORY PATE
TECHNOLOGY C